CLASSIFICATION OF THE POINTED-TAILED WASPS, OR THE SUPERFAMILY PROCTOTRYPOIDEA.—II.

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Family LIV. DIAPRIIDÆ.

This family comes very close to the *Belytidæ*, the two having been treated as a single family by A. H. Haliday in 1839, but is readily separated by the absence of a basal cell in the hind wings and by the two-jointed labial palpi.

The genus *Loboscelidia* Westwood, described from Sulu Island, was placed in this group, but I think incorrectly; it is apparently a Cynipoid and not a Proctotrypoid.

In habits the Diapriids agree with the Belytids, being parasites upon Dipterous larvæ.

The family may be divided into two subfamilies, as follows:

TABLE OF SUBFAMILIES.

Submarginal vein reaching the costa at about half the length of the wing or a little before; if it does not reach the costa it attains nearly half the length of the wing and ends in a stigma; costal cell most frequently closed.
Subfamily I. SPILOMICRINÆ.

Submarginal vein shorter, never reaching the costa beyond one third the length of the wing; costal cell most frequently open..................Subfamily II. DIAPRIINÆ.

Subfamily I. SPILOMICRINÆ.

The species falling in this group are as a rule considerably larger than those in the *Diapriinæ*, and are easily recognized by the much longer submarginal vein, which reaches the costa at about half the length of the wing, and the usually closed costal cell. In two genera, however, *Aneurhynchus* and *Labolips*, the submarginal vein does not reach the costa but ends in a stigma.

Table of Genera.

Females.. 1
Males.. 13
1. Antennæ less than 14-jointed 2
   Antennæ 14-jointed; mesonotum with two furrows.
   Polypeza *Förster* (type unknown).
2. Antennæ 13-jointed 3
   Antennæ 12-jointed 8
3. Mesonotum without furrows or at most only slightly indicated posteriorly...... 7
   Mesonotum with two distinct furrows.
      Metathorax unarmed 4

Metathorax at base armed with a curved spine or thorn; front wings with the basal nervure present ....**Hoplopria** *Ashmead**
(type *H. pulchripennis* ASHM.).

4. Front wings with a distinct basal nervure 5
Front wings without a distinct basal nervure.. 6

5. Abdomen conically pointed, the second segment without sulci at base, overlapping the apex of the petiole; marginal vein distinct.
Spilomicrus *Westwood* (type *S. stigmaticalis* WESTW.).
Abdomen rounded or truncate at apex, the second segment with sulci at base; marginal vein very short..............................**Hemilexis** *Förster* (partim).

6. Abdomen rounded or truncate at apex; front wings with the costal cell open; stigmal vein often with a backward directed branch.........**Hemilexis** *Förster*
(type *Diapria platyptera* HAL.)
Abdomen conically pointed; costal cell closed; stigmal vein simple.
Paramesius *Westwood* (type *P. rufipes* WESTW.).

7. Front wings without a basal nervure; stigmal vein longer than the marginal.
Hemilexodes *Ashmead* (type *H. floridanus* ASHM.).

8. Submarginal vein attaining the costa....... 9
Submarginal vein not attaining the costa, ending in a stigma or knob........... 12

9. Front wings with a basal nervure 10
Front wings without a basal nervure........... 11

10. Mesonotum with two furrows; antennæ ending in a 5-jointed club.
Idiotypa *Förster* (type *Psilus maritimus* HAL.).
Mesonotum without furrows; antennæ ending in a 3-jointed club; face keeled at the sides..**Tropidopsis** *Ashmead*
(type *T. clavata* ASHM.).

11. Mesonotum with two furrows.
Antennæ ending in a 5-jointed club.............................**Synacra** *Förster*
(type *Diapria brachialis* NEES).
Antennæ ending in a 4-jointed club..**Glyptonota** *Förster* (type unknown).

12. Mesonotum with two furrows.
Stigma with a stigmal vein; abdomen with three sulca at base.
Aneurhynchus *Westw.* (type *A. galesiformis* WESTW.).
Stigma without a stigmal vein; abdomen with only one sulcus at base.
Labolips *Haliday* (type *L. innupta* HAL.).

13. Antennæ less than 15-jointed 14
Antennæ 15-jointed.
Mesonotum with two furrows.................. ....**Polypeza** *Förster*

14. Antennæ 13-jointed 15
Antennæ 14-jointed 19

15. Mesonotum without furrows.
Mesonotum with two furrows.
Metathorax not armed at base with a curved spine.............................. 16
Metathorax armed at base with a curved spine or thorn; flagellar joints very long, cylindrical ....**Hoplopria** *Ashmeaa*

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* To this genus belong the species described by Mr. P. Cameron, in Biol. Centr.-Amer., I, 1888, under the genus *Paramesius* Westw.

16. Front wings with a basal nervure 17
    Front wings without a basal nervure 18
17. Mesonotum longer than wide; first flagellar joint as long or longer than the second; costal cell closed.
        Abdomen without sulci at base .... **Spilomicrus** *Westwood*
        Abdomen with sulci at base .... **Idiotypa** *Förster*
    Mesonotum not longer than wide; first flagellar joint hardly as long as the second: costal cell open.
        Stigmal vein much longer than the marginal .... **Hemilexis** *Förster*
18. First flagellar joint not half as long as the second .... **Paramesius** *Westwood*
19. Submarginal vein not reaching the costa, ending in a stigma or knob 21
    Submarginal vein reaching the costa.
        Mesonotum with two furrows 20
        Mesonotum without furrows.
            Flagellar joints elliptic-oval .... **Tropidopsis** *Ashmead*
20. Front wings without a basal nervure.
        Eyes hairy .... **Synacra** *Förster*
21. Stigma with a stigmal vein .... **Aneurhynchus** *Westwood*

Subfamily II. DIAPRIINÆ.

This group is distinguished by the brevity of the submarginal vein which reaches the costa at about one third the length of the wing; to it belong also some wingless forms.

Table of Genera.

Females 1
Males 20
1. Antennæ less than 14-jointed 3
    Antennæ 14-jointed.
        Pronotum normal 2
        Pronotum abnormal, produced anteriorly into a long horn that extends forward over the head .... **Notoxoides** *Ashm.* g. nov. (type *N. brasiliensis* ASHM.).
2. Mesonotum without furrows; front wings without a basal nervure.
        Myrmecopria *Ashmead* (type *Loxotropa mellea* ASHM.).
3 Antennæ 13-jointed 4
    Antennæ 12-jointed or less 5
4. Mesonotum without furrows or only slightly indicated posteriorly.
        Scutellum foveated at base; club of antennæ 1-jointed; basal nervure present. **Basalys** *Westwood* (type *B. fumipennis* WESTW.).
        Scutellum not foveated at base; club of antennæ consisting of one enlarged joint. .... **Monelata** *Förster* (type *Diapria parvula* NEES)
5. Antennæ 12-jointed 6
    Antennæ 11-jointed 19
6. Face normal or not greatly lengthened 7
    Face abnormal, greatly lengthened; mandibles rostriform.
        Mesonotum with two furrows .... **Galesus** *Curtis* (type *Psilus cornutus* PANZER).

7. Apterous forms 8
Winged 12
8. Head large and flat, more or less quadrate; ocelli wanting.......................... 9
Head sometimes large, but quite differently shaped; ocelli sometimes present.. 11
9. Legs normal, not short and stout; scape of antennæ not dilated.................. 10
Legs short and stout; scape of antennæ dilated, flat ...**Platymischus** *Westwood* (type *P. dilatatus* WESTW.).
10. Head oblong, full behind the eyes, scutellum indistinctly separated; antennæ long, the flagellum subclavate, the first three or four joints not short.
Platymischoides *Ashmead* (type *P. molokaiensis* ASHM.).
11. Thorax elongate and much narrowed, compressed; head of an abnormal shape, and compressed, seen from above it is longer than wide but hardly wider than the thorax, seen from the side it is much shorter than high, the small eyes being placed low down near the anterior margin ....**Zacranium** *Ashmead* (type *Z. ohuensis* ASHM.).
12. Front wings without a basal nervure.. 13
Front wings with a basal nervure
Mesonotum without furrows; club of antennæ 3- or 4-jointed.
Loxotropa *Förster* (type *L. acolutha* FŒRST.).
13. Mesonotum without furrows.
Scutellum normal, not ending in a spine 14
Scutellum ending in a distinct spine....................**Acanthopria** *Ashmead* (type *A. crassicornis* ASHM.).
14. Head transverse or subglobose.. 15
Head large, viewed from above pentagonal, the ocelli present; mesonotum without furrows; antennæ ending in a 5-jointed club, the funicle joints slender, subcylindrical, at least twice longer than thick........**Tetramopria** *Wasmann* (type *T. aurocincta* WASM.).
15. Scutellum not foveate at base.. 18
Scutellum foveate at base.
Tip of scutellum rounded or truncate, not compressed from the sides, ecarinate.. 16
Tip of scutellum compressed from the sides the sides, the disk or apex with a median carina; abdomen usually conically pointed.
Tropidopria *Ashmead* (type *Diapria conica* FABR.).
16. Last joint of antennæ quite differently formed.. 17
Last joint of antennæ enormously enlarged, oblong-oval.
Megaplastopria *Ashm.* g. nov. (type *M. brasilienis* ASHM.).
17. Abdominal petiole much longer than thick; metathorax always with a distinct ridge or conic prominence at base.
Diapria *Latreille* (type *Diapria verticillata* LATR.).
Abdominal petiole not longer than thick, densely woolly; metathorax most frequently without a conic prominence at base, usually areolated.
Antennal club 3-jointed..**Ceratopria** *Ashmead* (type *C. longicornis* ASHM.).
Antennal club 4- or 5-jointed ....**Trichopria** *Ashmead* (type *T. pentaplasta* ASHM.).

18. Axillæ not separated.
    Front wings at apex entire.......... **Phænopria** *Ashmead* (type *P. minutissima* ASHM.).
    Front wings at apex subemarginate.......... **Adeliopria** *Ashmead* (type *A. longii* ASHM.).

19. Head globose; mesonotum without furrows; abdomen with the second segment occupying most of the entire surface; flagellum subclavate, the joints 2–7 transverse, the eighth quadrate, the club large, cone-shaped, unjointed. **Solenopsia** *Wasmann* (type *S. imitatrix* WASM.).

20. Antennæ 14-jointed.......... 21
    Antennæ 13-jointed or less.......... 33

21. Scape not especially developed.......... 22
    Scape abnormally developed, broad and flat.
        Apterous; mesonotum without furrows.......... **Platymischus** *Westw.*

22. Face not lengthened; mandibles not rostriform.......... 23
    Face lengthened; mandibles rostriform.
        Mesonotum with two furrows; antennæ filiform, the third joint small, rounded, the following long, cylindrical.......... **Galesus** *Curtis*

23. Apterous forms.......... 32
    Winged forms.
        Front wings with a basal nervure.......... 24
        Front wings without a basal nervure.......... 27

24. First joint of the flagellum not shorter than the second.......... 25
    First joint of the flagellum much shorter than the second..... **Basalys** *Westwood*

25. Mesonotum without furrows.......... **Loxotropa** *Förster*

26. Scutellum unarmed.......... 27
    Scutellum ending in a distinct spine.......... **Acanthopria** *Ashmead*

27. Scutellum not foveated at base.......... 31
    Scutellum foveated at base.
        Scutellum at apex not compressed from the sides, rounded or truncate, without a carina.......... 28
        Scutellum at apex compressed from the sides, the disk or apex with a median carina.......... **Tropidopria** *Ashmead*

28. Stigma more or less developed; head not pentagonal.......... 29
    Stigma not at all developed, head pentagonal; first joint of flagellum elongate, nearly twice longer than the pedicel, the second shorter than the first, curved and thickened at apex, the third small, quadrate, 5–12 globose. **Tetramopria** *Wasmann*

29. Antennæ filiform or moniliform, the joints of flagellum not nodose-verticillate... 30
    Antennæ with the joints of the flagellum pedunculated, nodose-verticillate. **Diapria** *Latreille*

30. Second flagellar joint longer and thicker than the first, usually curved or angulated towards one side, the joints beyond rounded, with long bristles. **Ceratopria** *Ashmead*
    Second flagellar joint shorter than the first, the first four or five joints twice longer than thick, the joints beyond long-oval or moniliform, with short hairs, or the joints, after the second, moniliform, pilose.......... **Trichopria** *Ashmead*

31. Second flagellar joint about as long as the first, the joints beyond long-oval or moniliform..**Phænopria** *Ashmead*
32. Mesonotum without furrows........ ....**Loxotropa** *Förster*
33. Scutellum not foveated at base 34
Scutellum foveated at base.
Mesonotum with two furrows or at least well defined posteriorly.
First joint of flagellum as long as the second and third united.
Basalys *Westw.*
34. Mesonotum without furrows.
First joint of flagellum not half as long as the second........**Monelata** *Förster*

Family LV. CERAPHRONIDÆ.

Mr. A. H. Haliday, as early as 1839, was the first to correctly indicate this family as distinct from other Proctotrypids. It is a most interesting family, quite distinct in many particulars and exhibits very little affinity with any of the other families defined here.

The family is an extensive one, widely distributed over the entire world and is well represented by both genera and species, but still imperfectly known or studied.

The species attack plant-lice, *Aphididæ*, and Dipterous larvæ, belonging principally to the family *Cecidomyiidæ*. A few, however, have been recorded from Lepidoptera and Coleoptera, but I think incorrectly.

TABLE OF SUBFAMILIES.

Marginal vein stigmated; antennæ 11-jointed, the same number of joints in both sexes................ ....Subfamily I. MEGASPILINÆ.
Marginal vein linear, never stigmated; antennæ with a less number of joints in the females than in the males; males with 10- or 11-jointed antennæ, females 9- or 10-jointed.............. ....Subfamily II. CERAPHRONINÆ.

Subfamily I. MEGASPILINÆ.

This subfamily is easily distinguished by the large, stigmated marginal vein, which thus resembles the stigma of the more specialized families in the Apoidea, Sphecoidea, etc. The wingless forms, which are rare, are only separated from those in the *Ceraphroninæ*, by the difference in the antennæ.

Table of Genera.

Females 1
Males.......................... 9
1. Mesonotum with three impressed lines.. 2
Mesonotum without impressed lines, or with only one or two lines................ 6
2. Metathorax not spined at base.. 3
Metathorax with a forked spine at base.............. ....**Habropelte** *Thomson*
(type *Ceraphron scutellaris* DALB.).

3. Apterous.. 5
Winged.
  Wings pubescent with cilia.. 4
  Wings bare, without cilia, glabrous..................**Trichosteresis** *Förster*
(type *Ceraphron glabra* BOHEM.).
4. Eyes usually bare; mesonotum not narrowed anteriorly......**Lygocerus** *Förster*
(type *Ceraphron ramicornis* BOHEM.).
Eyes pubescent; mesonotum narrowed anteriorly.........**Megaspilus** *Westwood*
(type *Ceraphron abdominalis* BOHEM.).
5. Thorax not much narrowed; maxillary palpi 5-jointed, labials 3-jointed.
Megaspilus *Westw.*
Thorax much narrowed; maxillary palpi 4-jointed, labials 2-jointed.
Eumegaspilus *Ashmead* (type *E. erythrothorax* ASHM.).
6. Mesonotum without impressed lines 8
Mesonotum with one or two impressed lines.
  Mesonotum with one impressed line down the center........................ 7
  Mesonotum with two impressed lines...................**Dichognus** *Thomson*
(type *D. dimidiatus* THOMS.).
7. Eyes small; ocelli wanting. Apterous..........................**Lagynodes** *Förster*
(type *Ceraphron pallidus* BOHEM.).
Eyes large; ocelli present. Winged...............................**Atritomus** *Förster*
(type *A. coccophagus* FŒRST.).
8. Eyes large, bare; ocelli distinct... .... **Atritomus** *Förster*
Unknown?........... ....**Dendrocerus** *Ratzeburg*
9. Mesonotum with three impressed lines. 10
Mesonotum without impressed lines or with one or two impressed lines 13
10. Metathorax normal without a forked spine at base.................................. 11
Metathorax with a forked spine at base ....**Habropelte** *Thomson*
11. Wings pubescent, with cilia... 12
Wings bare, glabrous, without cilia ....**Trichosteresis** *Förster*
Apterous. Antennæ filiform................. .... **Eumegaspilus** *Ashmead*
12. Antennæ dentate or ramose........................ ....**Lygocerus** *Förster*
Antennæ filiform, simple, not dentate.............. .... **Megaspilus** *Westwood*
13. Mesonotum without an impressed line 14
Mesonotum with one or two impressed lines.
  Mesonotum with two impressed lines.....................**Dichogmus** *Thomson*
  Mesonotum with one impressed line ....**Atritomus** *Förster*
14. Antennæ toothed or serrate.............. ....**Atritomus** *Förster*
Antennæ with five long branches, a branch on each of the first five flagellar joints.
Dendrocerus *Ratzburg* (type *D. lichtensteini* RATZEB).

Subfamily II. CERAPHRONINÆ.

The species falling in this subfamily are distinguished by antennal characters, the males having more joints in the antennæ then the females, and by the *linear*, never stigmated, marginal vein.

Table of Genera.

Females. 1
Males 8
1. Antennæ 10-jointed 2
Antennæ 9-jointed. 7
2. Apterous 5
Winged.
Mesonotum without a furrow 4
Mesonotum with a medinm impressed line. 3
3. Scutellum flat or subconvex, with a marginal frenum ....**Ceraphron** *Jurine* (type *C. sulcatus* JURINE).
Scutellum convex, acuminate, without a frenum ....**Aphanogmus** *Thomson* (type *A. fumipennis* THOM.).
4. Antennæ subclavate 6
5. Mesonotum with a median impressed line.
Scutellum flat or subconvex, with a frenum.. ....**Ceraphron** *Jurine*
Scutellum convex, without a frenum... ....**Aphanogmus** *Thomson*
6. Scutellum distinct ....**Aphanogmus** *Thomson*
Scutellum not at all differentiated ....**Ecitonetes** *Brues* (type *E. subapterus* BRUES).
7. Mesonotum with a median impressed line ....**Neoceraphron** *Ashmead* (type *Ceraphron macroneurus* ASHM.).
8. Antennæ 11-jointed 9
Antennæ 10-jointed 12
9. Mesonotum with a median impressed line 10
Mesonotum without a median impressed line.
10. Scutellum depressed or flat, without a frenum; antennæ simple, not serrate. **Ceraphron** *Jurine*
Scutellum convex, acuminate, without a frenum; antennæ serrate. **Aphanogmus** *Thomson*
11. Scutellum convex, acuminate, without a frenum.
Antennæ serrate ....**Aphanogmus** *Thomson*
12. Mesonotum with a median impressed line.
Antennæ filiform ....**Neoceraphron** *Ashmead*

NOTES ON COCCINELLIDÆ.

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Major Thomas L. Casey's "Revision" of this family, printed in this Journal (Vol. VII, pp. 71–169), describes several new species: and the following notes result mainly from a study of his work and of the material in the collections of Messrs. Schaeffer, Roberts, Love, O'Conner, Luetgens, Marshall, Ouellet, Knaus, Wickham and Davis,